

CHAPTER 3 - DATA COLLECTION PROCEDURES

Data in the CWNS database are organized by "facility." Each facility in the database represents a location involved with water quality management, such as wastewater treatment plants or sewer systems, municipal separate storm sewer systems, NPS pollution control projects, concentrated animal feeding operations, and mining (point source). Every facility in the CWNS database has a unique name and a unique identifier number (called a Facility ID or Authority/Facility [A/F] Number). Each facility contains data that can be grouped into the following four major categories:

facility summary, needs, geographic, and technical. Table 3-1 presents the data elements for each category. Because of the dynamic nature of water pollution control planning, the data for each facility in the CWNS database change as planning evolves, construction funds are obtained, projects are completed, and improvements are made to existing facilities.

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Table 3-1. Data Elements in the CWNS 2000

<u>FACILITY SUMMARY</u>	<u>NEEDS</u>	<u>TECHNICAL</u>
<ul style="list-style-type: none"> • Authority/Facility (A/F) Number • Facility Name • Natures (Present and/or Projected) and Changes • System Name • "Privately Owned" Flag • "Interim Treatment Plant" Flag • Discharges to Another Facility • Facility Identification Number (FIN) 	<ul style="list-style-type: none"> • Needs Category • SRF-eligible Needs • Documentation Information • Separate State Estimates • Operation & Maintenance Costs 	<ul style="list-style-type: none"> • Population (and "Small Community Exception" Flag) • Flow Capacities of Treatment Plants • Discharge Method(s) and Location(s) • Effluent Data and Concentration Details • Unit Process or BMP Descriptions • Combined Sewer Details • Responsible Entity Information • Permit Numbers and Types • Biosolids Handling Data • Pollution Problem Descriptions • Miscellaneous Comments
	<u>GEOGRAPHIC</u> <ul style="list-style-type: none"> • Latitude and Longitude "Point of Record" (POR) • POR County • Watershed • Congressional District • Boundaries 	

Because the CWNS is a national effort, data comparability is extremely important to the overall consistency and quality of the CWNS database. For example, the relationship between needs, population, and flow is extremely important when one considers that when a need for the construction of a new facility is identified, the cost estimate will depend directly on the number of people for whom wastewater treatment is required, which in turn will determine the projected design flow. Other important data relationships include effluent permit concentrations and unit processes. As a result, the cost estimate for a new treatment plant will be directly affected by the planned permit requirements and proposed treatment processes. Whenever a value in one of these key fields changes, other related fields will require review and adjustment.

PREPARATION FOR DATA COLLECTION

Reports

EPA will supply you with a Facility Fact Sheet, CWNS Conversion Error Report, and Redocumentation Report at the start of data collection.

To begin data collection, the USEPA will provide each state with three reports for the CWNS 2000. The *Facility Fact Sheet* (FFS) is a printout of all information for a given facility. You will receive a complete printout of all facilities from the start-up database sorted by A/F Number. The FFS can be used to record changes for entry into the CWNS database. States will also receive a *CWNS Conversion Error Report* and a *Redocumentation Report*. The *CWNS Conversion Error Report* documents which data could not be automatically transferred to the CWNS database from the 1996 CWNS. States should review this report in conjunction with the FFS to determine whether data not transferred can be corrected and entered into the CWNS database. The *Redocumentation Report* presents a summary for which facilities documentation must be updated during the CWNS 2000 in order for the corresponding needs to be included as part of the States' documented SRF-eligible needs.

Sources of Technical and Needs Data

Some of the needs and cost data for cost estimate reviews are readily available from SRF files. Other suggested sources of technical and population data are as follows:

- Section 201 Wastewater Treatment Facility Plans.
- Wasteload Allocation or Total Maximum Daily Load studies.
- State biological, chemical, and physical water quality data.
- State section 305(b) reports on state-identified priority waterbodies.
- Grant application files.
- Clean Water State Revolving Loan Fund files.
- Regional and/or basin plans (sections 303, 208).
- Engineering plans and reports.
- State water quality standards.
- State Discharge Monitoring Reports (DMRs).

- National Pollutant Discharge Elimination System (NPDES) permit data.
- EPA Regional and Headquarters advanced treatment reviews.
- United States Census data.
- State Population Data Center Program Coordinators.
- State agencies, such as the Department of Health.
- Capital Improvement Plans.
- Approved NPS Management Plans under CWA section 319 or approved programs to implement CZARA section 6217(g) guidance.
- Programs to protect ground water, estuaries (under CWA section 320), and wetlands if part of an approved NPS management plan.

To get the most out of the CWNS, you will need to coordinate with colleagues who are knowledgeable in various subject areas, not only in your agency, but in other agencies in your State.

In many cases, to obtain the technical and geographic data, you will need to coordinate with colleagues who are knowledgeable in various subject areas, not only in your agency, but perhaps in other agencies in your State. To start, Chapter 6, *Nonpoint Source*, presents a list of the NPS Coordinators for each State as well as a data collection form that might be of assistance in organizing cost and technical information for NPS control measures before you try to perform data entry. In other cases, you might need to initiate your own "in-state" survey to target your State's special requirements. For example, Chapter 4, *Small Community Needs Data Collection*, presents a model survey form that you could distribute to communities with populations of less than 3,500 at the beginning of the data collection period.

Data Entry Shortcuts

You will also find that Chapter 8 of the *CWNS 2000 Database Users Guide*, Importing Data will greatly reduce your data entry burden by allowing you to import flow, effluent concentration, biosolids, discharge location, and geographic data into the CWNS database.

Computer Equipment Testing

All States should make sure that they have properly installed the CWNS database onto their computers using the installation instructions. EPA Regional staff will be available to provide individual technical assistance if necessary.

Scheduling

To avoid last-minute problems and to ensure a smooth flow of information into the CWNS database, every effort should be made to conform to the schedule of data inputs established at the kick-off meeting. If you intend to conduct your own state survey to acquire the data to go into the CWNS database, be sure to send those requests out early in the data collection period so that information will be available in a timely fashion. Also recall that if your State has sent out its own survey in the past, it might need to update the form so that all information can be requested at one time.

EPA also encourages States to complete data analysis and data entry for the bulk of their smaller facilities early so that they have time later to

concentrate their efforts on the larger facilities, which require more time to review. In past Surveys, many States have started by entering information from the 1-year fundable portion of their State Priority List/Intended Use Plan. States should mail planning document excerpts (submitted to justify a new or revised need or cost estimate) within 1-week of entering the needs into the CWNS database.

Automated Data Validation and Mandatory Fields

Consult the *CWNS 2000 Database User Guide* for information on mandatory data requirements.

The CWNS database maintains a complex set of rules that are used to automate error checking. These rules ease data entry by limiting the selection of certain options depending on the type of facility or require that the user enter certain data. For example, you can enter population data for only facilities associated with traditional wastewater treatment plants and conveyance systems. Consult the *CWNS 2000 Database User Guide* for these rules and for descriptions of mandatory data elements.

SRF-eligible costs are based on those costs that are eligible under Title VI of the Clean Water Act even though your State might not elect to fund some projects using the SRF program.

In addition to discrepancies identified through the automated error checking, EPA will reject facilities with data values that are considered technically abnormal, that are inconsistent with other data, or that prevent the cost curve program from calculating a cost estimate. For example, a high design flow for a small projected population will be investigated, and the State might need to re-review or explain the inconsistencies. Another example would be an advanced treatment estimate entry without corresponding effluent concentration data values for advanced treatment. EPA will also reject facilities whose needs have not been accurately reported into the appropriate categories of needs or correctly divided between SRF-eligible and non-SRF-eligible. Recall that SRF-eligible costs are based on those costs that are eligible under Title VI of the Clean Water Act even though your State might not elect to fund some projects using the SRF program.

FACILITY SUMMARY DATA

The facility summary data include basic information that defines the facility and include the following data elements:

- Authority/Facility (A/F) Number
- Facility Name
- Facility Identification Number (FIN)
- Natures (Present and/or Projected) and Changes
- System Name
- Privately Owned and Interim Treatment Plant flags
- Discharges to Another Facility check box

These data elements are described below. Refer to Chapter 3 of the *CWNS 2000 Database User Guide* for information on how to enter these data elements into the database.

Authority/Facility (A/F) Number

The A/F Number is an 11-digit identifier number that is unique to each facility in the CWNS database.

Reasons to Add a New Facility. As facility planning evolves, new projects are identified and older facilities or projects are abandoned. For the CWNS to remain up-to-date, it is often necessary to add a new facility to the database to represent a newly proposed facility. In some cases, it is necessary to break down a large project, which is represented by one A/F Number, into several smaller system components, each of which will be represented by a new A/F Number. For example, the needs for a large treatment plant and sewer system currently represented by one A/F Number might be better represented as two or three separate A/F Numbers—one for the original treatment facility and additional numbers to represent the district service areas served by sewers.

Choosing a New A/F Number. The users assign A/F Numbers when a facility is first created in the database. The primary requirement for choosing a new A/F Number is to pick an A/F Number that has not been used before. The numbers can be assigned using whatever numeric value the user wishes. The only restriction is that the first two digits of the A/F Number must be the appropriate State's two-digit Federal Information Processing Standards (FIPS) code. Once an A/F Number is created, it cannot be changed, deleted, or reassigned to another facility. In years past, EPA recommended that States choose an A/F Number that is related to an existing A/F Number. For example, A/F Number 99000001001 represents AJAX STP within the Needsville Sewer Authority. A new service area within that authority has applied for a loan. If this new service area will be represented by a new A/F Number, consider calling it 99000001**002**. With the modernized database and the improved data storage capabilities, States can select any approach they wish for assigning new A/F Numbers, but for consistency might want to continue the practice already used by the State.

An A/F Number is a user-defined 11-digit number. The first two digits correspond to the State's FIPS code.

Deleting a Facility. As mentioned earlier, facilities cannot be truly deleted from the database. Nevertheless there might be projects that were planned but for some reason will never be implemented. In these cases, it is appropriate to set the Review Status to Delete. EPA will no longer review the data associated with this facility, nor will EPA include the facility in its report of technical data or SRF-eligible needs. Do not delete a facility just because there are no needs because such facilities will include technical data, such as population and flow, that are commonly summarized in EPA reports.

Facility Name

The Facility Name is the name of the facility (e.g., "Blue Plains WWTP," "San Francisco SW Sewer - East," or "Chesapeake Bay NPS Program"). The only restriction is that each Facility Name must be unique within that State. Otherwise, the Facility Name can be anything that you wish.

Facility Identification Number (FIN)

The Facility Identification Number (FIN) is an EPA-defined code number. Once EPA has determined the procedure for developing FINs; EPA will

populate this field. For the CWNS 2000, States may ignore this data element.

System Name

The System Name describes the system to which the facility has been assigned. A System Name is used to relate a group of facilities. Assigning facilities to a system improves your ability to search for related facilities using the 2000 CWNS database.

EXAMPLE *The WWTP and sewer system for the City of Warrenton have been entered into the CWNS Database as two separate facilities. These two facilities could be included in a system called "Warrenton Wastewater."*

EXAMPLE *The City of Bedford has a CWNS facility in the database representing its sewer system and the WWTP, but the city also receives wastewater from two neighboring villages, Jackson and Huntley, which have their own CWNS database facilities. These three facilities (Bedford, Jackson, and Huntley) could be included in a system called "Bedford Wastewater District."*

EXAMPLE *The City of Maddox has three associated facilities: a sanitary sewer system, a Municipal Separate Storm Sewer System (MS4), and a municipal landfill that is a source of NPS pollution. These three facilities could be included in a system called "City of Maddox."*

Privately Owned and Interim Treatment Plant Flags

As the name suggests, you should indicate whether a facility is privately owned, rather than publicly owned. Needs associated with privately owned facilities that are not SRF-eligible are entered as Separate State Estimates. If a facility contains an interim treatment plant, you should check the Interim Treatment Plant check box. SRF-eligible needs from interim plants are included in the CWNS Report.

Facility Natures (Present and/or Projected)

Facility Natures define the basic components of a CWNS facility (e.g., Treatment Plant, Large MS4, or Agriculture-Croplands). Each nature is classified as to currently existing (Present), existing in the future (Projected), or both (Present and Projected).

EXAMPLE *A proposed treatment plant would have a nature of Treatment Plant (projected).*

EXAMPLE *An enlargement to an existing collection system would have a nature of Collection: Separate Sewers (present and projected).*

EXAMPLE *Abandoning a treatment plant would have a nature of Treatment Plant (present).*

A facility may have as many Facility Natures as necessary to adequately describe the facility.

All applicable Facility Natures for the CWNS 2000 are described below.

Treatment Plant. A combination of unit processes or best management practices designed to receive and treat wastewater then discharge the treated wastewater (effluent) into the environment. This nature includes unit

processes or best management practices intended solely to remove pollutants from combined sewer overflows prior to discharge of the overflow to the environment. This nature does not include unit processes or best management practices intended to thicken, stabilize, dewater, or store biosolids. These should be designated as Biosolids Handling Facilities.

Collection: Combined Sewers. A combination of unit processes or best management practices designed to collect and transport a combination of wastewater and storm water. This nature does not include sewers that were designed to carry only wastewater and infiltration/inflow, which should be designated as Collection: Separate Sewers.

Collection: Separate Sewers. A combination of unit processes or best management practices designed to collect and transport only wastewater. This nature includes sewer systems that may collect and transport infiltration and inflow as well as wastewater. This nature does not include sewers that were designed to carry both storm water and wastewater, which should be designated as Collection: Combined Sewers.

Biosolids Handling Facility. A combination of unit processes or best management practices designed to thicken, stabilize, dewater, or store biosolids prior to disposal. This nature does not include

- Unit processes or best management practices designed to receive and treat wastewater, then discharge the treated wastewater (effluent) into the environment. These should instead be designated as Treatment Plants.
- Unit processes or best management practices intended solely to remove pollutants from combined sewer overflows prior to discharge of the overflow to the environment. These should instead be designated as Treatment Plants.

Individual On-Site System Area. A combination of unit processes or best management practices designed to receive, treat, and dispose of wastewater from individual structures (homes, businesses, etc.). Some examples are septic tanks and holding tanks.

Decentralized Treatment System. A combination of unit processes or best management practices designed to collect, receive, treat, and dispose of wastewater from groups of structures (homes, businesses, etc.). Some examples are septic tanks with multiple unit leach fields and septic tanks followed by community mound systems.

Large Municipal Separate Storm Sewer System (for populations of greater than 250,000). A combination of unit processes or best management practices designed to collect and transport only storm water for entities included in the Phase I storm water regulation. Only processes/practices that address water quality or public health problems may be included in the CWNS database.

Medium Municipal Separate Storm Sewer System (for populations between 100,000 and 249,999). A combination of unit processes or best management practices designed to collect and transport only storm water for entities included in the Phase II storm water regulation. Only processes/

Municipal Separate Storm Sewer Systems are covered by either the Phase I or II storm water regulation, whereas Urban is not covered by the storm water regulation.

practices that address water quality or public health problems may be included in the CWNS database.

Small Municipal Separate Storm Sewer System (for populations of less than 100,000). A combination of unit processes or best management practices designed to collect and transport only storm water for entities included in the Phase II storm water regulation. Only processes/practices that address water quality or public health problems may be included in the CWNS database.

Urban. A combination of unit processes or best management practices designed to address water quality or public health problems associated with urban settings, such as erosion, sedimentation, and discharge of pollutants (e.g., oil, grease, road salts, and toxic chemicals) into urban streams from construction sites, roads, bridges, parking lots, and buildings. Storm water projects not covered by Phase I or II of the storm water regulation are classified as Urban.

Urban runoff management practices prevent or reduce the availability, release, or transport of substances that adversely affect surface water and ground water. They act generally to diminish the generation of pollutants from specific sources, in this case, urban/storm water runoff. Although a management practice can have standards associated with its installation, operation, or maintenance, it does not impose effluent limits for specific substances. Rather, it provides an effective means of reducing or preventing the impact of nonpoint pollutants from a specific source category.

Agriculture - Cropland. A combination of unit processes or best management practices designed to address water quality or public health problems caused by agricultural activities such as plowing, pesticide spraying, irrigation, fertilizing, planting, and harvesting.

The primary agricultural nonpoint source pollutants are nutrients, sediment, animal wastes, salts, and pesticides. Agricultural activities also have the potential to directly affect the habitat of aquatic species through physical disturbances caused by livestock or equipment, or through the management of water.

Agriculture - Animals. A combination of unit processes or best management practices designed to address water quality or public health problems caused by agricultural activities related to grazing and animal production such as animal feeding operations not subject to the concentrated animal feeding operation (CAFO) regulations.

Agriculture-animals does not include concentrated animal feeding operations.

Animal waste includes the fecal urinary wastes of livestock and poultry, process water (such as that from a milking parlor), and the feed, bedding, litter, and soil with which they become intermixed. Pollutants such as organic solids, salts, bacteria, viruses, and other microorganisms, and sediments may be contained in animal wastes transported by runoff water and process wastewater.

Silviculture. A combination of unit processes or best management practices designed to address water quality or public health problems caused by forestry activities such as removal of streamside vegetation, road

construction and use, timber harvesting, and site preparation for the planting of trees.

Silvicultural activities can cause degradation of water quality and habitat quality if care is not taken to prevent adverse effects. Sediment from erosion due to tree harvesting activities and access road construction, temperature increases due to riparian shade removal, and pesticides and fertilizer used during timber operations are some of the major pollutants from timber-harvesting sites. Silviculture BMPs include measures that control erosion from access roads, maintain stability of stream banks, ensure revegetation of harvested areas, and control the introduction of pesticides and fertilizers into waterways.

Marinas. A combination of unit processes or best management practices designed to address water quality or public health problems associated with boating and marinas, such as poorly flushed waterways, boat maintenance activities, discharge of sewage from boats, storm water runoff from marina parking lots, and the physical alteration of shoreline, wetlands, and aquatic habitat during the construction and operation of marinas.

Marinas overlap between the storm water program and the coastal nonpoint source programs under the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA). Conditions that result in nonpoint source pollution in marinas include the following:

- Poorly flushed waterways where dissolved oxygen deficiencies exist.
- Pollutants discharged from boats.
- Pollutants transported in storm water runoff from parking lots, roofs, and other impervious surfaces.
- The physical alteration or destruction of wetlands and of shellfish and other bottom communities during construction of marinas, ramps, and related facilities.
- Pollutants generated from boat maintenance activities on land and in the water.

Resource Extraction. A combination of unit processes or best management practices designed to address water quality and/or public health problems caused by mining and quarrying activities. Resource extraction management practices can prevent or reduce the availability, release, or transport of substances that adversely affect surface and ground waters.

Resource Extraction includes mining and quarrying activities that are not identified under Mining (point source).

Brownfields. A combination of unit processes or best management practices designed to address water quality and/or public health problems at abandoned, idle, and underused industrial and commercial sites. Brownfields can be urban, suburban, or rural areas.

Storage Tanks. A combination of unit processes or best management practices designed to address water quality or public health problems caused by tanks designed to hold gasoline or other petroleum products or chemicals. The tanks may be located either above or below ground level.

Sanitary Landfills. A combination of unit processes or best management practices designed to address water quality or public health problems at sanitary landfills. Sanitary landfills are those landfills designed as disposal sites for nonhazardous solid wastes rather than hazardous solid waste or biosolids.

Ground Water-Unknown Source. A combination of unit processes or best management practices designed to address ground water protection needs from an unknown or otherwise undefined source. Any need that can be attributed to a specific cause of ground water pollution should be indicated with a more specific nature, such as storage tanks, brownfields, or sanitary landfills.

Hydromodification. A combination of unit processes or best management practices designed to address water quality and/or public health problems associated with channelization and channel modification, dams, and streambank and shoreline erosion.

Confined Animals - Point Source. A combination of unit processes or best management practices designed to address water quality or public health problems caused by agricultural activities related to animal production that are subject to the concentrated animal feeding operation (CAFO) regulations.

Animal waste includes the fecal urinary wastes of livestock and poultry, process water (such as that from a milking parlor), and the feed, bedding, litter, and soil with which they become intermixed. Pollutants such as organic solids, salts, bacteria, viruses, and other microorganisms, and sediments may be contained in animal wastes transported by runoff water and process wastewater.

Mining-Point Source. A combination of unit processes or best management practices designed to address water quality and/or public health problems caused by **point source** mining and quarrying activities. Resource extraction management practices can prevent or reduce the availability, release, or transport of substances that adversely affect surface and ground waters.

Facility Classified as "Other." A designation that can be used for a combination of unit processes or best management practices when no other natures adequately describe the activities the facility is designed to do. If this designation is used, an explanation must be included in the Facility Comment Window to describe the facility to a reasonable extent.

Facility Changes

Facility Changes are used to describe the type of change corresponding to a particular Facility Nature.

Facility Changes indicates the type of change (typically due to construction or some other type of improvement) that corresponds to the Facility Nature, such as Increase Level of Treatment, Expansion, or New/Modify BMP. Each Facility Nature requires one or more Facility Changes. If the Facility Change is set to No Change for all of the Facility Natures, the total needs for this facility would be zero. All applicable Facility Changes for the CWNS 2000 are described below.

No Change. There are no planned modifications.

New. Proposed construction or implementation of a new nature (e.g., treatment plant, individual on-site system area, municipal separate storm sewer system, contour buffer strips for agricultural runoff, shore erosion control measures) that is not currently included in the facility record.

Abandonment. All unit processes/best management practices that make up the facility nature will no longer be used or will be demolished in the future. For example,

- Taking a Treatment Plant out of service by transporting the flows it treats to another treatment plant.
- Taking a Biosolids Handling Facility out of service by centralizing all biosolids treatment at one regional biosolids handling facility.
- Replacing septic tank systems with a central collection and treatment system. In this case, the individual sewage disposal system nature will have a change of Abandonment and the Collection: Separate Sewers and Treatment Plant natures will have a change of New.

Abandonment does not include taking single unit processes or best management practices out of service but maintaining the overall nature of the facility (e.g., switching from chlorination to ultra-violet disinfection). This change should be categorized as Process Improvement.

Increase Capacity. Increasing the treatment capacity for existing treatment plants, biosolids handling facilities, municipal separate storm sewer systems, decentralized treatment systems, and nonpoint source best management practices with regard to flow or tonnage. For example,

- Increasing a wastewater treatment plant design flow from 1 million gallons per day (MGD) to 2 MGD.
- Increasing a biosolids handling facility capacity from 0.25 ton per day to 0.35 ton per day.
- Increasing the size of multiple unit leach field to handle additional flow.
- Increasing the size of a sediment basin used to capture runoff from a construction site.
- Replacing existing sewers with larger-capacity sewers or expanding existing pump stations to pump more flow.

This change does not include

- Increasing level of treatment to meet more stringent effluent limits. This change should be categorized as Increase Level of Treatment.
- Increasing the size of a sewer system by adding new sewers and expanding the service area. This change should be categorized as Expansion.
- Adding sand filtration to an existing noncentralized treatment system. This change should be categorized as Process Improvement.

Increase Level of Treatment. The degree of treatment will be improved. This refers to any improvement in unit processes or best management practices that improves the effluent quality or decreases the concentration of

most water quality variables from run-off or other nonpoint sources. The addition of nutrient removal is considered to be an improvement in effluent quality (e.g., secondary effluent **with** nutrient removal represents higher-quality effluent than secondary effluent **without** nutrient removal).

Rehabilitation. Restoring or repairing parts of existing treatment plants, combined or separate sewer systems, biosolids handling facilities, municipal separate storm sewer systems, individual on-site systems, and nonpoint source best management practices with no increase in capacity or level of treatment. For example,

- c Extensive repair of existing sewers beyond the scope of normal maintenance programs.
- c Repairing deteriorating tank walls at a treatment plant.
- c Replacing a deteriorated cover on an anaerobic digester.
- c Adding a forebay to prevent sediment from getting into a retention pond.

This change does not include

- c Replacement of one or more sewer with another while maintaining the same capacity. These changes should instead be categorized as Replacement.
- c Any work that could be considered to be normal operation and maintenance.

Replacement. An existing facility is considered obsolete and is demolished and a new facility is constructed on the same site. For treatment plants, this generally implies the same degree of treatment as the demolished plant.

Process Improvement. Any improvement to a facility that **does not** increase the capacity, increase level of treatment, expand the service area, or make a similar change for existing treatment plants, biosolids handling facilities, municipal separate storm sewer systems, decentralized treatment systems, and nonpoint source best management practices. For example,

- c Replacing coarse bubble diffusers with fine bubble diffusers at a wastewater treatment plant.
- c Replacing pumps in a pump station.
- c Adding sand filters to an existing decentralized cluster system.

If a more detailed/appropriate change type is available, it should be used.

Expansion. Increasing the service area of an existing sewer system or nonpoint source best management practice. This change does not include

- c The construction of an entirely new sewer system, which should be categorized as New.
- c Increasing the treatment capacity for existing treatment plants, biosolids handling facilities, municipal separate storm sewer systems, decentralized treatment systems, and nonpoint source best management practices. These changes should be categorized as Increase Capacity.

Instrumentation/Electrical/Laboratory. Adding new or modifying existing instrumentation systems (e.g., SCADA), electrical systems, or laboratory facilities at an existing facility of any nature.

TECHNICAL DATA

By keeping the technical data up-to-date, you increase the value of the CWNS to other programs.

Various technical data are included in the CWNS Database (see Table 3-1 on page 3-1). These data elements include details such as the population served (sewered) by a facility, flow capacities of treatment plants, permit numbers, effluent limits, and individual unit process or best management practice (BMP) data. Technical data elements have become increasingly important for a number of reasons. For EPA, technical data are reported in the CWNS Report to summarize the inventory of existing and proposed wastewater infrastructure requirements. This approach has provided Congress with information on infrastructure requirements and the population that will be served by the reported needs. EPA has used data from the CWNS to evaluate the environmental benefits that have resulted from federal funding or SRF loans and as input into policy analyses.

Maximum benefit from the CWNS will be derived only if the technical data are kept up-to-date on a regular basis.

As evidenced by State Workgroup member comments during the planning of the CWNS 2000, by keeping the technical data up-to-date, States can use the CWNS database to help coordinate water pollution control activities at the State or watershed level. One example, might be to use reports that summarize ongoing or planned projects in a watershed to facilitate the development of Total Maximum Daily Load (TMDL) implementation plans. This concept of integration is already beginning to take place as some CWNS data are already included in EPA's ArcView-based GIS tool, *Better Assessment Science Integrating Point and Nonpoint Sources* (BASINS). Through integration with other databases, the power of the CWNS technical data will continue to increase. The technical data are also used as input into the cost curve equations when a need has been documented but detailed cost estimates are not yet available. Maximum benefit from the CWNS will be derived only if the technical data are kept up-to-date on a regular basis.

For some technical data elements discussed below, data are reported for present and future (projected) conditions. In today's water quality management, projects might not be designed for the traditionally called-for 20 years. This is particularly true for NPS projects. As a result, present conditions represent the current status whereas future conditions are the conditions that will exist at the facility once all needs have been met and the described projects are complete. *Design Year issues are discussed more thoroughly later in this chapter (page 3-21).*

Depending on the information entered for Facility Natures and Facility Changes, some technical data are mandatory. Chapter 5 of *CWNS 2000 Database User Guide* summarizes these mandatory data elements and provides information on how to enter the following data elements into the database:

- Population (and "Small Community Exception" Flag)
- Flow Capacities of Treatment Plants

Population data are reported in the CWNS Report for facilities related to traditional wastewater collection and treatment.

- Effluent Data and Concentration Details
- Discharge Method(s) and Location(s)
- Unit Process or BMP Descriptions
- Combined Sewer Details
- Responsible Entity Information
- Permit Numbers and Types
- Biosolids Handling Data
- Pollution Problem Descriptions
- Miscellaneous Comments

Population

Population data are reported in the CWNS Report and are normally reported from a number of sources, including section 208 planning documents, facility planning documents, and State planning offices that deal with population issues. Population data are essential for use in the wastewater treatment cost-curve needs estimates for those facilities with a documented problem but insufficient information from which to obtain a cost estimate. States should check the accuracy of the population data and revise the data if necessary for facilities with a Facility Nature of Treatment Plant, Collection: Combined Sewers, Collection: Separate Sewers, Decentralized Treatment System, Individual On-Site System Area, and/or Facility Classified as "Other." Depending on the Facility Nature, you are required to maintain the data associated with current (present) and/or planned (future) resident and non-residents within the service area. These data are categorized by populations Receiving No Collection, Receiving Collection (sewered), and if applicable Individual Sewage Disposal System (ISDS). The CWNS database computes the population receiving treatment based on the data for this facility and any other facilities that are upstream in the sewershed. Chapter 5 of the *CWNS 2000 Database User Guide* describes procedures for evaluating data in a sewershed and comparing these data with the corresponding flow data.

Present population totals describe the population currently associated with the selected facility, whereas Future population totals describe the population that will be associated with the facility during the design year. Resident population applies to the people who **live** within the service area of the facility. Nonresident population applies to the people who **do not live** within the service area of the selected facility, but that still use or are served by the associated sewers, treatment plants, or ISDSs. This population includes persons such as transient, seasonal, and commuter workers, as well as tourist populations.

Population Ceilings. Regardless of the source of population data reported for an individual facility, or how the population is disaggregated for each facility, the total population reported for a State may not exceed the ceiling set by EPA at the beginning of the CWNS. Population ceilings for 2000 and 2020 were developed from U.S. Bureau of the Census population estimates. Table 3-2 provides the present and future population ceilings that will be

Total populations in the CWNS database may not exceed the population ceiling values in Table 3-2.

Table 3-2. CWNS 2000 Present and Future Population Ceilings^a

	Region/State	EPA 2000 Final Population Ceiling (thousands)	EPA 2020 Final Population Ceiling (thousands)		Region/State	EPA 2000 Final Population Ceiling (thousands)	EPA 2020 Final Population Ceiling (thousands)
1	Connecticut	3,284	3,623	6	Arkansas	2,631	2,989
	Maine	1,259	1,393		Louisiana	4,425	4,987
	Massachusetts	6,199	6,738		New Mexico	1,860	2,456
	New Hampshire	1,224	1,406		Oklahoma	3,373	3,923
	Rhode Island	998	1,106		Texas	20,119	25,732
	Vermont	617	670				
2	New Jersey	8,178	9,241	7	Iowa	2,900	3,017
	New York	18,146	19,373		Kansas	2,668	3,024
	Puerto Rico ^b	3,916	4,196		Missouri	5,540	6,128
	Virgin Islands ^b	121	144		Nebraska	1,705	1,890
3	Delaware	768	847	8	Colorado	4,168	5,011
	District of Columbia	523	625		Montana	950	1,095
	Maryland	5,275	6,068		North Dakota	662	717
	Pennsylvania	12,202	12,566		South Dakota	777	853
	Virginia	6,997	8,194		Utah	2,207	2,777
	West Virginia	1,841	1,848		Wyoming	525	668
4	Alabama	4,451	5,090	9	Arizona	4,798	6,110
	Florida	15,233	19,604		California	32,521	45,329
	Georgia	7,875	9,535		Hawaii	1,257	1,683
	Kentucky	3,995	4,273		Nevada	1,871	2,246
	Mississippi	2,816	3,089		American Samoa ^b	65	95
	North Carolina	7,777	9,095		Guam ^b	155	211
	South Carolina	3,858	4,507		N. Marianas ^b	72	123
	Tennessee	5,657	6,515				
5	Illinois	12,051	13,124	10	Alaska	653	838
	Indiana	6,045	6,475		Idaho	1,347	1,681
	Michigan	9,679	9,998		Oregon	3,397	4,171
	Minnesota	4,830	5,397		Washington	5,858	7,433
	Ohio	11,319	11,666				
	Wisconsin	5,326	5,780				

^a <http://www.census.gov/population/projections/state/stpjpop.txt> (accessed March 12, 2000)^b <http://www.census.gov/ipc/www/idbsum.html> (accessed March 12, 2000)

used in this CWNS. The population ceilings are compared with the sum of the Present Resident Population Receiving Collection plus the Present Resident Population with No Collection. The 2020 population ceilings are compared with the sum of the Future Resident Population Receiving Collection plus the Future Resident Population with No Collection. At the end of the data collection effort, the total population in each State will be compared to the ceiling estimates, and if the State population totals exceed the ceiling estimates, EPA will work with the State resolve this anomaly.

Small Community Exception. The needs of many small communities are underestimated since acceptable documentation is unavailable. Although small communities will be identified through a computerized selection process according to population and flow, it is important to recognize the potential for error and to give the States the option to modify the "list" of facilities designated as small communities. A small community is defined as a community having a population of less than 10,000 and a flow of less than 1 MGD. If a State has a facility meeting these criteria, but does not classify the community as small, the State may designate the facility as an exception by checking the Small Community Exception Flag associated with the population data in the CWNS database.

A considerable amount of judgment might be required to distinguish a facility serving a small community from an extension of a larger community. A facility ***should not*** be designated as a small community if

- It is only one of several facilities serving a community of 10,000 people or more.
- It has a wastewater system and its location within an urbanized area makes it an end component of, and virtually indistinguishable from, surrounding or adjacent entities.
- Its wastewater system is physically connected to a regional treatment authority serving 10,000 or more.

Flow Capacities of Treatment Plants

Flow data describe the quantity of wastewater moving through the facility and the present or planned design capacity of that facility. These data are measured in units of million gallons per day (MGD). Flow data are reported in the CWNS Report and are essential for use in the wastewater treatment cost-curve needs estimates.

Users can now track Municipal, Industrial, and Infiltration Flow as well as Wet Weather Flow (Peak Flow) for each applicable facility. Municipal Flow describes the portion of the wastewater flows generated by residential, commercial, and/or institutional sources within the service area of the facility. Industrial Flow describes the portion of the wastewater flows generated by industrial sources within the service area of the facility. This portion should include all industrial sources greater than 0.05 MGD. Infiltration Flow describes the estimated portion of the wastewater flow that is entering the collection system via defective joints, connections, or manhole walls (as a result of infiltration and inflow, or I&I). Total Flow is computed as the sum of Municipal, Industrial, and Infiltration Flow. Wet

Wastewater flows are also reported in the CWNS Report. Make sure the flows and population data are consistent.

Weather Flow (Peak) describes the peak flow that the treatment plant either can or does treat.

With respect to the different categories described above, facilities in the CWNS database hold information for Existing, Present Design, and Future Design Flows. Existing Flow refers to the calculated average flow for a recent 12-month period, whereas Present Design Flow refers to the current designed hydraulic capacity of the existing treatment plant. Future Design Flow refers to the planned hydraulic capacity of the plant in the design year. If there are No Changes at the treatment plant, the Present Design Flow and Future Design Flow are equal.

For facilities that have a Facility Nature of Treatment Plant, Decentralized Treatment Syst., or Facility Classified as "Other" States should check the accuracy of the flow data and revise the data if necessary. If the flow values are changed, the consistency with population information should be confirmed using the procedures described in Chapter 5 of the *CWNS 2000 Database User Guide*.

Effluent Data and Concentration Details

Effluent data describe the quality of wastewater discharged from the facility (e.g., primary, secondary, advanced). Effluent data are reported in the CWNS Report and are also essential for use in the wastewater treatment cost-curve needs estimates. Specific concentrations of the wastewater components may also be entered into the CWNS database. For **all** facilities with a Facility Nature of Treatment Plant, Decentralized Treatment Syst., or Facility Classified as "Other," States should check the accuracy of the effluent characteristics and ensure that the characteristics are up-to-date.

The Present and Projected Design Effluent describes the general level of effluent quality that the facility is currently designed and projected to discharge. Below is a summary of possible treatment levels.

Effluent levels describe the quality of the effluent from a wastewater treatment plant. Treatment levels are further clarified by the State's indicating whether the plant has nutrient removal.

Raw Discharge. Wastewater discharged without receiving any form of treatment. Pollutant concentrations in a raw discharge can vary depending on the source of the pollutant(s).

Primary Treatment. Wastewater discharged after receiving some preliminary and/or primary treatment (e.g., screening, grit removal, primary settling). A wastewater treatment plant with a BOD₅ concentration greater than 45 mg/L (based on 30-day averages) in its National Pollutant Discharge Elimination System (NPDES) permit is considered to be providing primary treatment.

Advanced Primary Treatment. Wastewater discharged after receiving extensive primary treatment (e.g., screening, grit removal, primary settling). A wastewater treatment plant with a BOD₅ concentration greater than 30 mg/L but less than or equal to 45 mg/L (based on 30-day averages) in its NPDES permit is considered to be providing advanced primary treatment.

Secondary Treatment. Wastewater discharged after receiving biological and/or physical/chemical treatment, including lagoons and trickling filters. A wastewater treatment plant using biological and/or physical/chemical treatment other than lagoons or trickling filters with a BOD₅ concentration

greater than or equal to 20 mg/L but less than or equal to 30 mg/L (based on 30-day averages) in its NPDES permit is considered to be providing secondary treatment. A wastewater treatment plant using lagoons or trickling filters as the main means of treatment may have actual permitted BOD₅ concentrations greater than 30 mg/L, but will still be considered to be providing secondary treatment.

Advanced Treatment I. Wastewater discharged after receiving biological and/or physical/chemical treatment. A wastewater treatment plant with a BOD₅ concentration greater than or equal to 10 mg/L but less than 20 mg/L (based on 30-day averages) in its NPDES permit is considered to be providing advanced treatment I.

Advanced Treatment II. Wastewater discharged after receiving biological and/or physical/chemical treatment. A wastewater treatment plant with a BOD₅ concentration less than 10 mg/L (based on 30-day averages) in its NPDES permit is considered to be providing advanced treatment II.

To further clarify the treatment level, the State should indicate whether the facility currently uses any processes to remove nutrients (nitrogen or phosphorus) from its effluent. Note that addition of nutrient removal is considered to be an improvement in effluent quality (e.g., secondary effluent **with** nutrient removal, represents higher quality effluent than secondary effluent **without** nutrient removal).

Pollutant Concentration Details. The user can store specific concentration details for a facility's influent and effluent. The influent and effluent pollutant concentrations are reported for Existing, Present Design, and Future Design. The Existing concentrations should use the recent 12-month average from a source such as a Discharge Monitoring Report (DMR). The Present Design concentrations should reflect the current NPDES permit limits, while the Future Design data should be taken from a source such as the design plans for any suggested plant improvement.

Discharge Method(s) and Location(s)

Discharge data for the facility describe details of the Method(s) used to discharge water or wastewater from the facility, as well as the geographic location of the discharge(s). One or more of the following Methods for disposal may be selected depending on the type of facility:

- CSO Discharge
- Deep Well
- Discharge to Ground Water
- Discharge to Another Facility
- Evaporation
- Ocean Discharge
- Outfall to Surface Waters
- Overland Flow With Discharge
- Overland Flow, No Discharge
- Reuse in Industrial Process
- Spray Irrigation
- Other

Unit Process or BMP Descriptions

Details of the various unit processes or best management practices (BMPs) associated with the facility can be recorded in the CWNS database. Every assigned unit process or BMP must have a Status and a Change assigned. The Status describes whether the related unit process or BMP is currently In

Use or is Proposed to be built or put into place at some time in the future. The unit process/BMP Change is similar to the Facility Change assigned to Facility Natures, and it indicates what is proposed to be done (e.g., modifications, improvements) to the individual unit process/BMP in the future.

Combined Sewer Details

Information relating to any combined sewers associated with the facility is recorded in the CWNS database. The combined sewer information recorded in the CWNS database includes the coverage of combined sewers with respect to acreage and population. The acreage and population are divided into those portions for which needs are documented and those portions for which the CSO cost curve is to be run. Refer to Chapter 5, Wet Weather for a more complete discussion about combined sewers.

Responsible Entity Information

The primary entity or authority responsible for the facility is recorded in the CWNS database. The responsible entity information recorded in the CWNS Database includes the name of the applicable entity or authority, as well as the associated contact information. The contact information includes the following:

- Authority Name (*mandatory*)
- Point of Contact
- Phone Number and Fax Number (of the above Point of Contact)
- Address (of the above Authority or Point of Contact)
- County (of the above Authority or Point of Contact)
- City, State and ZIP Code (of the above Authority or Point of Contact)
- E-mail (of the above Point of Contact)
- Native American Tribe check box

Permit Numbers and Types

This information describes the types of environmental permits held by the facility, as well as their associated permit numbers. Information for both NPDES permits and other environmental permits can be stored. Common permit types include Discharge, Combined Sewer Overflow, and storm water. The NPDES permit number reported for the facility should be checked to make sure it is accurate. This number is an important link to other databases such as the Permit Compliance System (PCS).

Biosolids Handling Data

The CWNS database can be used to record biosolids handling data associated with the facility. The biosolids handling data recorded in the CWNS database are the tonnages of the biosolids processed by the facility and the associated moisture percentages of those biosolids. The tonnages are expressed in units of metric tons per day. The data maintained in the CWNS database include Existing Tonnage, Present Design Tonnage, Future Design Tonnage, Existing Moisture Percentage, Present Design

Moisture Percentage, and Future Design Moisture Percentage. Existing data refer to the average daily tonnage of biosolids that is actually processed by the facility and the average moisture percentage of those biosolids. Present Design and Future Design refer to the current designed capacity of the biosolids handling facility and its planned design capacity, respectively.

Pollution Problem Descriptions

Pollution Problems can be used to record information concerning the types of pollution problems associated with the facility. The pollution problem is the cause or source, suspected or known, of the pollution associated with the facility. These problems may be point or nonpoint source. The default categories of pollution problems are Agriculture, Construction, Habitat Modification, Resource Extraction, Silviculture, Urban Runoff/Storm Sewers, Land Disposal, Point Sources, and Other. Following the procedures in Chapter 10 of the *CWNS 2000 Database User Guide*, you can add additional pollution problem categories

Miscellaneous Comments

Use the Miscellaneous Comments to record interesting and unusual characteristics about the facility.

The CWNS database can be used to record a large variety of facility information in its various data windows. However, sometimes you may want to enter some information for which a specific data field does not exist. Miscellaneous Comments should be used to enter and maintain this miscellaneous information. States will find that entering Miscellaneous Comments will be helpful if the facility has some special situations that do not allow the facility to pass through the normal data validation process.

GEOGRAPHIC DATA

Many modern databases include data elements for geographic information. Numerous organizations look for effective ways to summarize and present information, and many turn to geographic information systems (GISs) to serve this function. Simply put, GISs are databases that have a geographic data component. The advantage of associating geographic information with other data is that it enables spatial analysis and evaluation of those data. Including geographic data in the CWNS database will improve the value of your data and allow you and others to analyze the data more effectively. For example, not only will you be able to report the magnitude of your Needs and what they relate to, but you will also be able to tell exactly **where** the funding is required. Note that some data from the 1996 CWNS are included EPA's ArcView-based GIS tool, *Better Assessment Science Integrating Point and Nonpoint Sources* (BASINS) and that displaying some CWNS data can already be accomplished using a GIS.

Every facility in the CWNS database must have some associated geographic data.

Every facility in the CWNS database must have some associated geographic data. These geographic data elements describe the physical location of the facility and provide information concerning associated watershed, political, and other boundaries. Chapter 4 of the *CWNS 2000 Database User Guide* explains the procedures for entering the following geographic data:

- Latitude and Longitude “Point of Record” (POR)
- POR County
- Watershed
- Congressional District
- Boundaries

The latitude and longitude “Point of Record” (POR) define the physical position of the facility, whereas the county, watershed, and congressional district describe the area in which that facility POR is located. Note the POR is not the same as the location of the discharge described on page 3-20. If you need to assign a POR to an area, you can use the geographic centroid of that area, although you can also use the boundary. Defined boundaries can relate to several areas that might be associated with the facility, including a collection system service area or the boundary of a nonpoint source best management practice.

If you do not have these data readily available, you should first consult with your State’s GIS group. With the advancement of global positioning, it is possible that your State has already gathered these data and entering the data into the CWNS database is a matter of using the import tool described in Chapter 8 of the *CWNS 2000 Database User Guide*. However, if you do not have specific geographic data associated with a facility, there are several potential data sources that you can use to find the information.

These include

- Commercially available maps
- United States Census (<http://tiger.census.gov/cgi-bin/mapbrowse-tbl> or <http://www.census.gov>)
- United States Geological Survey (<http://www.USGS.gov>)
- Internet resources (e.g., <http://www.mapquest.com>)
- Commercial software (e.g., Microsoft Streets Plus, ESRI)
- Global positioning system (GPS) survey data

Some of these resources use address matching to determine the latitude and longitude of a specified street address and, therefore, can be used to determine an existing facility’s Point of Record. The accuracy of address matching typically ranges from 50 to 100 meters, greater than the EPA’s location accuracy goal of 25 meters. Map interpolation from a 1:24,000 scale map by a skilled technician can result in 12 to 50 meter accuracy for easily identifiable features. Today’s GPS units, when operated correctly, offer much better accuracy, but require site visits to collect the data.

If the facility has at least one assigned Present Nature, its physical location should be defined. As a result, the Latitude/Longitude POR, County, Watershed, and Congressional District are mandatory geographic data. If the facility only has a Projected Nature (e.g., a proposed wastewater treatment plant), its exact physical location might not have been determined. Thus, County is the only mandatory geographic data. Also note that there

There are many sources of latitude and longitude data to support your data entry work.

are mandatory data elements used to describe the source of the latitude/longitude data.

NEEDS DATA

Background

Throughout the era of the Title II Grant program, the Needs Survey confined itself to estimating needs in “traditional” needs categories for Publicly Owned Treatment Works (POTWs). Reflecting generally accepted engineering practice for planning and design of conventional municipal wastewater collection, transmission, treatment and disposal facilities, sections 201 and 208 of the Clean Water Act, and particularly the implementing federal grant regulations found in 40 CFR, Part 35, Subpart E, Appendix A, required that planning for grant-assisted treatment facilities be based on a 20-year period. This 20-year planning requirement was in turn incorporated into the Needs Survey. Consequently during the grants era Needs were traditionally reported as “Present” and “Future,” with “Future” being defined as the cost of constructing facilities planned to accommodate growth over this 20-year planning period, and were referred to as the “Design Year Needs.” “Present” needs were defined as that increment of the 20-year project cost allocable to serving existing wasteloads. Before October 1, 1990, the “present” needs were the only costs allowable for grant assistance.

With the establishment of the SRF and associated expansion of loan eligibilities to include “nontraditional” needs categories, such as storm water treatment and nonpoint source control programs, there was immediate recognition on the part of federal and State CWNS Coordinators that the 20-year needs approach did not neatly fit all categories. Despite this recognition, the 20-year planning assumption was retained because of the difficulties of fundamentally altering the CWNS database and because certain Title II requirements (including section 208 planning requirements) remained applicable to the SRF programs through FY 1994. After that date, however, states had the option of adopting their own planning criteria.

In both the *1996 CWNS Manual*, and more forcefully in the *1996 CWNS Report to Congress* (Report), EPA pointed out that the “20-year needs” approach was clearly not applicable since individual states were adopting differing planning period requirements not only for “traditional” needs categories, but especially for nontraditional categories of needs that are not directly affected by population change. Unstated but implied in the Report was the premise that for future Surveys, available needs documentation would not necessarily provide data for estimating a 20-year need.

Although past Surveys focused on reporting needs for a 20-year design period, this is no longer a requirement because typical planning in the SRF environment does not focus on a 20-year design period.

This reality is recognized in the present survey effort. In fact, the replacement of a nationally uniform federal grants program with 50 distinct State SRF programs, the shift in emphasis from attaining compliance to maintaining compliance at municipal POTWs, and the broadened eligibilities of the program have necessarily altered the definition of “needs.” Most significantly, eligible loan applicants are not as likely to delay needed construction until assistance becomes available, as was frequently the case

when the assistance was in the form of federal and State grants. More typically, they shop first for low-interest SRF funds and then go forward with improvements using alternative financing if their opportunity to receive SRF funds will be significantly delayed. Planning focuses more on solving immediate problems as they arise, with the result that planning is less comprehensive and covers shorter planning periods. Indeed, where storm water, CSO, and nonpoint issues are the concern, it is often impossible to do anything other than to plan and construct facilities based on existing conditions.

Under these altered circumstances, the CWNS cannot be a comprehensive calculation of national or state wastewater needs over the next 20 years or any particular time period. It is instead a snapshot in time, reporting those needs—short-term and long-term—that can be documented in accordance with nationally uniform documentation standards as of a given date, which in the present instance is January 1, 2000. What all of these “needs” will have in common is that they are all eligible for SRF assistance under the terms of the present Clean Water Act, and they all include costs entirely or in part necessary to correct existing conditions that threaten water quality or public health. Where it is possible and appropriate to do so, the improvement plans and engineering reports from which these needs estimates are derived are assumed to include a prudent allowance for the future. However, there is no national standard in law or regulation that defines a time frame for this planning.

Documenting a Need

Despite this evolution, it is necessary to have consistent documentation criteria for determining whether a facility's needs belong in the CWNS and to improve the accuracy of cost estimates. Established in previous Surveys, the specific documentation criteria are used to evaluate the existence of a water quality or public health problem and the cost of the proposed solution.

For the purposes of the CWNS, an SRF-eligible cost, or need, is a cost estimate for any project that is eligible for financial assistance under Title VI of the CWA. For consistency, it is important that your State report SRF-eligible costs based on Title VI of the CWA even though your State might elect to not fund some projects using the SRF program.

Needs are estimated for facilities used in the conveyance, storage, treatment, recycling, and reclamation of municipal wastewater. Estimates are included for all types of required changes to wastewater facilities, such as constructing entirely new facilities and enlarging, upgrading, abandoning, and replacing existing facilities. Existing facilities are considered for replacement when they have reached the end of their design life and are no longer able to operate satisfactorily. The costs for providing control and/or treatment of storm water (Category VI) and nonpoint source pollution (Category VII) that are SRF-eligible should be reported in the CWNS.

To be included as part of EPA's estimate of SRF-eligible needs, the following six pieces of data are needed:

- 1. Description of the water quality or public health problem.** A description of the water quality impairment and potential source

There are six basic criteria for documenting an SRF-eligible need.

information must be provided. Normally this information may be based on monitoring reports so that, in the case of nonpoint source pollution, only general source classes, such as urban or agriculture, are identified. Where watershed assessments have been completed, the description of the problem may also include specific pollutant source information (e.g., runoff from an animal feeding operation, an improperly constructed logging road, a leaking petroleum storage tank, an eroding stream bank due to removal of the riparian vegetation), as well as a general statement regarding the water quality impairment. In either case, the problem needs to be attributed to a specific source; a general statement of the cause of water quality impairment is not. For example, documentation describing a countywide problem of septic system failures due to poor soils is not acceptable to document the wastewater treatment needs of a particular town in that county.

2. **The location of the problem.** Depending on the type of problem and the size of the area it covers, the location must be either identified with a single latitude/longitude point or described with a polygon of multiple latitude/longitude points. When the impaired "facility" is a watershed, it should always be described as a polygon.
3. **The solution to the problem.** One or more specific pollution control measures or best management practices to address the problem need to be identified.
4. **The cost for each solution.** The cost to implement each pollution control measure or specified best management practice needs to be provided. Use site-specific data to generate costs, not a general, overall estimate for the problems in an area.
5. **The basis of the cost.** The source of the cost (e.g., engineer's estimates, costs from comparable practices, estimates from equipment suppliers) for each solution must be identified. This information allows EPA to judge the credibility of the cost for inclusion in the Survey.
6. **The total cost.** This is the total cost of all pollution control measures and best management practices documented for the area.

No documentation dated prior to January 1, 1994 is acceptable for facilities with total needs greater than \$20 million (year 2000 dollar base) and no documentation dated prior to January 1, 1990 is acceptable for facilities regardless of the dollar amount of needs.

To provide consistency from State to State, a list of the acceptable documentation types is shown in Table 3-3. This table can be used to determine whether a certain document can be used to justify that a water quality or public health problem exists and whether the cost estimates from the document will generally be acceptable to the EPA. New entries are subject to the same document age criteria used for redocumentation. That is, no documentation dated prior to January 1, 1994 is acceptable for facilities with total needs greater than \$20 million (year 2000 dollar base) and no documentation dated prior to January 1, 1990 is acceptable for facilities regardless of the dollar amount of needs. If a water quality or public health problem is satisfactorily demonstrated, but insufficient planning exists to support a cost estimate, nationally derived construction cost curves can be used to calculate a cost estimate for Categories I, II, IVA, IVB, and V. These construction cost curves use the proposed type of facility change as a basis for determining a cost estimate. If your documentation does not contain all of the above data, you can still include your cost estimate as a Separate State Estimate.

If you have a document that meets the above criteria but is not listed in Table 3-3, please contact your Regional Coordinator. If your documentation is related to small community needs or nonpoint sources consult Chapter 4, Small Community Needs Data Collection, or Chapter 6, Nonpoint Sources, for additional instructions.

Table 3-3. List of Acceptable Documentation for the CWNS 2000.

Document Title	Used for Need Justification	Used for Cost Justification
1. Capital Improvement Plan	Yes	Yes ^a
2. I/I Analysis	Yes	Yes
3. SSES	Yes	Yes
4. Final Engineer's Estimate	Yes	Yes
5. Cost of Previous Comparable Construction	No	Yes ^a
6. Facility Plan	Yes	Yes
7. Plan of Study	Yes	No
8. State Priority List/Intended Use Plan (1-Year Fundable Plus 4-Year Planning Portion) with exceptions such as refinancing	Yes	See Note b
9. State-Approved Area-wide or Regional Basin Plan with Project-Specific Information	Yes	Yes ^a
10. Federal or State Grant Application Form or SRF Loan Application	Yes	Yes
11. Municipal Compliance Plan	Yes	Yes
12. Diagnostic Evaluation Results of Municipal Wastewater Treatment Plants Demonstrating Need for Construction	Yes	No
13. Administration Order/Court Order/Consent Decree Demonstrating Need to Construct	Yes	No
14. Sanitary Survey (Documenting High Failure Rates) or Certification from a Health Official That a Health Emergency Exists	Yes	No
15. State-Approved Local/County Comprehensive Water and Sewer Plans (With Project-Specific Information)	Yes	Yes ^a
16. State Certification of Excessive Flow (Preliminary I/I Study)	Yes	No
17. State-Approved Municipal Wasteload Management Plan (Project-Specific Information)	Yes	Yes ^a
18. For EPA Use Only	Not available for State use	Not available for State use
21. NPDES or State Permit Requirement (w/Schedule)	Yes	No
22. Municipal Storm Water Management Plan	Yes	No ^c
23. Nonpoint Source Management Plan/Assessment Report	Yes	No ^c
24. Nonpoint Source Management Plan/Ground water Protection Strategy	Yes	No ^c
25. Nonpoint Source Management Plan/Well-Head Protection Program and Plan	Yes	No ^c
26. Nonpoint Source Management Plan/Delegated Underground Injection Control Program Plan	Yes	No ^c
27. Estuary Comprehensive Conservation Management Plan	Yes	No ^c
28. Funding Applications (applicable only for communities with populations <3,500)	Yes	Yes
29. State Needs Surveys (applicable only for communities with populations <3,500)	Yes	Yes
30. Model Survey (applicable only for communities with populations <3,500)	Yes	Yes
31. Information from an Assistance Provider (applicable only for communities with populations <3,500)	Yes	No

^a The contractor will review documentation to make sure that costs are within acceptance ranges.

^b Only the 1-year fundable portion may be used to justify cost.

^c Documentation might have information that can be used to justify cost. Cost justification for Categories I–VII must be project-specific and distributable among Categories I–VII.

Documentation Type Description

The following paragraphs describe each of the documentation types and include comments concerning the proper use of the documentation types.

Capital Improvement Plan (CIP) (1). A CIP is a fiscal planning document used by major cities that usually spans 1 to 20 years. It contains project- and cost-specific information and is sometimes referred to as a Master Plan.

A CIP is an acceptable form of documentation to justify a need and the appropriate project-specific costs; however, the plan must adequately address why the project is needed. In many cases this information is not provided in the plan; therefore, another form of documentation must be found to justify the need.

Note that many CIPs do not contain a satisfactory description of an existing problem, only a need for projected growth. In some cases another form of documentation will be necessary in addition to the CIP to document the problem. Also note that CIPs frequently describe areawide projects with little specific detail, which makes the assignment of the correct needs category difficult.

Infiltration/Inflow (I/I) Analysis (2). An I/I analysis is a document that identifies excessive flow problems due to infiltration or inflow into the sewerage conveyance system. The problems are usually identified by the use of a television survey of the sewer, smoke testing, flow metering, or physical survey. The I/I analysis itself may be contained within a Facility Plan, a Sewer System Evaluation Survey, or a Combined Sewer Overflow Report.

The recommendations section of the report should be checked to determine the recommended solution to the problem. In some cases, the report might recommend a "no action" alternative because it is more cost-effective not to correct the excessive I/I problem. In these cases, no need would be reported.

Sewer System Evaluation Survey (SSES) (3). An SSES is a document that contains the results of a sewer system survey, manhole inspection, smoke testing, and flow monitoring. It is used to evaluate the physical condition of a sewer system and identifies areas of combined sewers, downspout connections, and locations where the sewer system is at capacity. Recommendations may include replacing areas with larger-diameter pipe, grouting joints, and separating sewers in areas of combined sewers. In many cases a combined sewer overflow (CSO) study is placed in this category.

Final Engineer's Estimate (4). A Final Engineer's Estimate contains a specific description of the project scope and a list of work to be done with detailed itemized costs.

Note that this document is not the same as a Preliminary Engineer's Estimate or a Plan of Study. A Final Engineer's Estimate is an excellent source of accurate cost information. The Final Engineer's Estimate is typically submitted as a result of detailed facility design.

Cost of Previous Comparable Construction (5). This estimate of cost must be based on the cost of a recently completed project that is similar in size, scope, and location and for which detailed construction cost data are available. The comparable plant must also have had Public Law 92-500 SRF funding and bid sheets.

The plant in question must be within two incorporated cities' distance from the plant used as a basis of comparison. This means that it must be adjacent to an incorporated city that shares a boundary with the city in which the project being used for comparison is located. The size of the project (population served, pipe lengths, etc.) must be within plus or minus 25 percent of the size of the model project. Also, the geographic and soil conditions of the project must be approximately the same as those for the model.

Facility Plan (6). The facility plan was the most common type of documentation used in previous Needs Surveys. It was required to apply for Federal Construction Grants Program funding and often is used for SRF loan applications. The facility plan contains project-specific information, and typically several alternatives are presented, including one recommended alternative.

Only information covering the recommended alternative may be used to document a need and a cost estimate. Also, the funding status of the project should be checked to make sure that the need has not already been satisfied.

Plan of Study (POS) (7). Any type of preliminary engineering study done before more detailed planning to assess the scope and feasibility of the project is categorized as a Plan of Study. This documentation type encompasses documents ranging from a several-page memo to a formal Preliminary Engineer's Estimate or Preliminary Engineer's Study. As long as the need is project-specific and the POS identifies a current problem, the document will be accepted.

The POS document must be an official project description that precedes a facility plan. It may be used only to document the need. EPA cost curves will be used to estimate the costs based on the project description. It is very important that the State reviewer submit figures indicating population to be served, technical data, and a project description so that the appropriate changes can be made to the facility record in order for an accurate cost estimate to be generated.

State Project Priority List/Intended Use Plan (8). The priority list and intended use plan are lists of projects ranked by State-assigned criteria for which federal funding assistance is being sought. The 1-year fundable plus 4-year planning portion of the FY 2000 or 2001 list may be used to document need as long as it was accepted by the Region. Projects on the fundable portion of the current intended use plan may also be used for cost estimates. If the full scope of the project is to be funded over several years, the total amount should be entered for costs. For projects in the planning portion of the list, EPA cost curves will be used to estimate a cost. It is particularly important that the technical information on the form is accurate for needs based on cost curves. Also, be sure that the categories being documented by the priority list match those on the fact sheet. A copy of the appropriate priority list and intended use plans must be submitted to EPA with a copy of the EPA regional office acceptance letter.

State-Approved Area-wide or Regional Basin Plan (9). CWA section 208 and 303 Regional Basin Plans are broad-based water quality management plans written primarily in the mid-1970s to identify future planning for areas within a State. These reports study large areas such as basins or counties and usually recommend general solutions to current or anticipated wastewater needs within the planning area. Only section 208 and 303 documents that contain site-specific information and a description of a need may be accepted as documentation of need. Documentation of cost is

assessed on a case-by-case basis depending on the amount of detail reported and the source of the information.

Grant Applications and SRF Loan Applications (10). Federal or equivalent state grant applications or SRF applications may be used to document needs and to update costs for the categories in which the grant money is requested. Applications should contain sufficient clearly written narrative that defines the specific project and the water quality and/or public health problem. If an equivalent state grant program application is used as documentation, the form must be submitted.

Municipal Compliance Plan (MCP) (11). A Municipal Compliance Plan is developed when a municipality needs to construct a wastewater treatment facility to achieve compliance. The MCP should describe the necessary treatment technology and estimated cost, should outline the proposed sources and methods of financing the proposed facility (both construction and operation and maintenance), and should provide a schedule for achieving compliance as soon as possible.

In past Surveys, some States submitted letters from the State agency notifying the municipality that an MCP was required from them, but an MCP had yet to be prepared. Only completed MCPs will be accepted for this documentation type.

Diagnostic Evaluation (12). A diagnostic evaluation is usually performed when a facility cannot achieve effluent discharge permit limits or when it experiences design, operational, analytical, or financial problems that limit the performance of the facility.

This type of evaluation may be used to document a need if the results indicate that construction is necessary to achieve compliance. Operation- and maintenance-related problems do not document a need.

Administrative Orders, Court Orders, or Consent Decrees (13). These official documents are usually issued as the result of continued violation of an NPDES permit or other pollution control requirements. The order or decree must state a need for construction to correct the violation in order to document the need. Cost curves will be used to calculate associated costs.

Sanitary Survey (14). A Sanitary Survey is a logical, investigative approach to gather information to evaluate the condition of existing on-site wastewater systems. These surveys are performed to document the condition of existing on-site systems for facility planning purposes and to locate sources of water pollution and public health problems.

The sanitary survey must document high areawide failure rates that are considered serious enough to be a health hazard (such as ground water contamination caused by malfunctioning septic tanks) in order to document a need. The documentation must clearly state that on-site failures are contributing to a water pollution or health-related problem. The fact that an area has soils unsuitable for septic systems does **not** document the need for sewers or a treatment plant. **Communities with populations of less than 10,000 will be able to use a letter from a registered State or County Sanitarian or Professional Engineer with documentation or other evidence of a site visit that supports the determination of need.** EPA will review this documentation on a case-by-case basis.

State-Approved Local Comprehensive Water and Sewer Plan (15). These plans are similar to State-Approved Area-wide Basin Plans. These local plans also cover fairly large areas and might not contain project-specific information. These local plans must clearly identify a water quality

or health-related problem and must be project-specific to be acceptable as documentation.

State Certification of Excessive Flow (16). This document may be used to demonstrate that a need exists for infiltration/inflow correction.

State-Approved Municipal Wasteload Allocation Plan (17). A Municipal Wasteload Allocation Plan is a water quality analysis done to determine the level of treatment required by a specific project, which is ultimately translated into an effluent limitation for the NPDES permit. This plan can be used to justify the need for a treatment plant enlargement or upgrade as long as the study identifies a specific sewage treatment point source and appropriate design flows and treatment levels. This plan may be used to document a need and may be used to update costs if the project descriptions identify specific costs.

For EPA Use Only (18). States should not use this documentation code.

NPDES or State Permit Requirement (with Schedule) (21). The National Pollutant Discharge Elimination System is a permitting program implemented under authority of the CWA that is designed to control point source discharges of pollution. All point sources discharging to waters of the United States are required to have an NPDES permit establishing effluent limitations (and other permit conditions) designed to protect the designated uses of the receiving waterbody. Municipal and industrial storm water point sources are included in this permitting system, as well as ocean dischargers. Facilities not meeting effluent limitations and on compliance schedules or facilities **required** to plan because they are at or near plant capacity may submit documentation under this documentation type.

Municipal Storm Water Management Plan (22). A Municipal Storm Water Management Plan is a plan submitted as a proposed municipal storm water management program as part of a municipality's NPDES storm water permit application. It includes a description of the structural and source control measures to be implemented to (1) reduce pollutants in runoff from commercial and residential areas that are discharged from the storm sewer, (2) detect and remove illicit discharges and improper disposal into storm sewers, (3) monitor pollutants in runoff from industrial facilities that discharge to municipal separate storm sewers, and (4) reduce pollutants in construction site runoff that is discharged to municipal separate storm sewers.

Nonpoint Source Management Program/Assessment Report (23). A Nonpoint Source Management Program is a 4-year plan developed by a State to address nonpoint source pollution problems. Elements in the program include identification of the best management practices and measures to reduce pollutant loading, programs to achieve implementation, a schedule with annual milestones, costs and identification of specific projects, certification that the laws of the State will provide adequate authority to implement the plan, and sources of funding and assistance. A Nonpoint Source Assessment Report assesses the extent of pollution due to diffuse or nonpoint sources within a State. The report identifies navigable waters that require nonpoint source controls to achieve CWA water quality standards, sources and amounts of such pollution, and State and local control programs. It also describes the process that will be used to identify best management practices. EPA will consider other documentation, such as nonpoint source grant applications and states' surveys, on a case-by-case basis.

See Chapter 6 for more information on NPS needs.

Nonpoint Source Management Program/Ground Water Protection Strategy Report (24). States can use a Comprehensive Ground Water Protection Strategy to document NPS needs if the strategy is part of a Nonpoint Source Management Program. The goals of this major Federal initiative addressing ground water protection are to strengthen State ground water programs; deal with significant, poorly addressed ground water problems; create a policy framework within EPA for the guidance of ground water policy; and strengthen the ground water organization within EPA. Included in such a strategy are programs established under the Safe Drinking Water Act (SDWA) such as regulation of the injection of wastes into deep wells, the Well-Head Protection Program, and the Sole Source Aquifer program. Provisions in the Resource Conservation and Recovery Act (RCRA) for leaking underground storage tanks, goals in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for contaminated ground water sites, and State grant programs in the CWA for ground water protection activities are covered by this strategy.

Nonpoint Source Management Program/Wellhead Protection Program and Plan (25). A Wellhead Protection Plan may be used to document NPS needs if it is part of a Nonpoint Source Management Program. As part of its overall ground water protection strategy, each State must delineate wellhead protection areas for wells or well fields used for public water supply. Contaminant sources within the wellhead protection area must be identified and a management plan developed to protect the water supply in that area from contamination. Contingency plans for each public water supply system must be developed to ensure an appropriate response in the event that contamination occurs, and standards must be established for locating new wells so as to minimize the potential for contamination of the water supply.

Nonpoint Source Management Program/Delegated Underground Injection Control Program Plan (26). A State may document needs to address NPS aspects of a Delegated Underground Injection Control Program Plan if it is part of the State's Nonpoint Source Management Program. As part of the Safe Drinking Water Act, EPA and State Underground Injection Control Programs were established to protect potential underground sources of drinking water from contamination by injection wells.

Estuary Comprehensive Conservation and Management Plan (27). A Comprehensive Conservation and Management Plan (CCMP) is a management plan developed for an estuary that has been nominated for the CWA section 320 National Estuary Program (NEP). The CCMP summarizes findings, identifies and establishes a priority for addressing problems, determines environmental quality goals and objectives, identifies action plans and compliance schedules for pollution control and resource management, and ensures that designated uses of the estuary are protected.

Funding Applications (28). For communities with populations of less than 3,500, all applications for funding (with signed agency review sheets, e.g., Rural Economic and Community Development—formerly FmHA, Community Development Block Grant—HUD) other than SRF are acceptable for need. The application is acceptable for cost if an engineering report is reviewed by qualified state project staff.

State Needs Surveys (29). For communities with populations of less than 3,500, all State Need Surveys are acceptable *for documenting need* if

See Chapter 4 on Small Communities for more information on Funding Applications, State Needs Surveys, Model Survey Forms, and Information from an Assistance Provider.

- A local government official's signature is included. ("Local" means city, community, town, borough, village, or county.)
- Information describing the problem is attached.
- Information describing prior or ongoing planning efforts and descriptions of the cost-effective control option are offered.

State Need Surveys are acceptable **for documenting cost** if a cost estimate that has been prepared and signed by an engineer or engineer circuit rider is attached. The cost estimate need not be as detailed as that found in a facility plan, but it must include the engineer's rationale for the estimate. Qualified state project staff must also sign a statement of cost reasonableness after reviewing the estimate.

Model Survey Form (30). For communities with populations of less than 3,500, use of a standard or "model" survey form (see Chapter 4, Small Community Needs Data Collection, for model survey form) is acceptable for documenting need (and cost) as long as signatures are included. If costs are not included, cost curves will be used.

Information from an Assistance Provider (31). For communities with populations of less than 3,500, a statement of need from a technical assistance provider (State training center, health department, circuit rider, etc.) along with a soils/geologic report and health department report would document need. Local official and provider signatures must be included. Cost curves will be used to document costs. *Remember that cost curves are based on simple regressions of data in the CWNS and represent "comparable costs" even though the cost curves might not include all allowable costs.*

Guidelines for Submitting Documentation Excerpts to EPA

Whenever a State makes a change to a needs estimation, adds a new category of need, or adds a new facility, documentation to support the need and/or cost estimates must be supplied to the contractor. The State must assign the appropriate A/F Number to the documentation and submit the documentation excerpts to the following address within one week of entering the data into the CWNS database:

Jim Collins
Tetra Tech, Inc.
10306 Eaton Place, Suite 340
Fairfax, VA 22030
ph: 703-385-6000

Clearly label all documentation and make sure the documentation includes excerpts substantiating the water quality or public health problem, describes the recommended alternative, and presents associated costs.

States should follow these guidelines when submitting documentation regardless of community size:

- Clearly label the document with the A/F Number that applies to the document. Highlight the document title, date, and author.
- If a document is used as need or cost justification for more than one facility, each A/F Number must be listed on the submitted document.
- The following excerpts must be sent to the contractor: the cover page, a description of the water quality or health problem supporting the need, a description of the recommended alternative, and a summary of the costs for the recommended alternative.
- States do not need to send documentation if the source of documentation for needs is less than \$10 million, is part of the official SRF files, **and** is one of the following documentation types:

Only send in documentation if it cannot be footnoted.

- I/I Analysis (2)
- SSES (3)
- Final Engineer's Estimate (4)
- Facility Plan (6)
- Plan of Study (7)
- State Priority List/Intended Use Plan (1-Year Fundable Portion) (8)
- Grant Application Form/SRF Loan Application (10)

As with other documentation, the title, author, and date and must be entered into the CWNS database.

Explain how you came up with your cost estimates to minimize the amount of time you will need to spend on the phone with a data quality reviewer.

- Identify logic used to compute SRF-eligible costs and categorization into the correct categories of need. Usually documents do not report cost estimates that match with the requirements of the CWNS. For example, SRF-eligible and non-SRF-eligible costs are combined, or the costs for enlarging and upgrading a secondary WWTP to advanced treatment are not split into Categories I and II. In these instances, include a worksheet (handwritten is acceptable) that shows how you arrived at the values you entered into the CWNS database. There is probably no standard form that is sufficient to cover all of the variations. Thus, the worksheet should start with identifying which cost values were taken from the document (identify cost and page number), identify deductions (e.g., cost elements that are not SRF-eligible, components already implemented), and provide any additional calculations used to derive the values entered into the CWNS database. Providing this information will save you from burdensome phone calls from the EPA contractor. The worksheet should be attached to the document and labeled with the A/F Number.

For the CWNS 2000, EPA continues to request that States send more complete information related to cost estimates entered for Category V, VI, or VII. This information will be used to determine whether additional documentation types will be needed in future surveys and will be reviewed in the current effort to estimate national costs. EPA is particularly interested in information that will support unit cost calculations. In this case, EPA requests that the States submit complete documents (rather than selected excerpts) to the above address. If the documentation is voluminous, contact EPA Headquarters for further instructions.

Assigning Costs to Correct Categories of Need

So that needs can be correctly reported, a standard set of rules for categorizing costs have been developed. The categorization is described in this section.

Category I (Secondary Treatment). All costs associated with the construction of secondary treatment plants, individual or community septic tanks, and the treatment portion of a noncentralized type of facility should be reported in Category I. All needs for alternative collection systems proposed to serve less than 3,500 people should be reported in Category I. Only needs necessary to achieve a secondary treatment level should be included in Category I.

Category II (Advanced Treatment). Costs for constructing an advanced treatment plant or for bringing a plant to an advanced level of treatment should be reported in Category II. It might be necessary to divide costs between Categories I and II. If a plant must attain a greater-than-secondary level of treatment, only the incremental costs beyond the needs for achieving secondary treatment levels should be entered as Category II Needs.

For each document, divide the SRF-eligible costs into categories so that reporting consistency is maintained.

Category I Needs for treatment plants with ocean outfalls that have applied for and received waivers from secondary treatment requirements under CWA section 301(h) (or for whom decisions are pending) will have their Category I Needs adjusted based on the status of their waiver request.

Costs for treatment plant outfalls should be included in Category I or Category II as appropriate. All costs for land treatment, including land purchases, should be reported as Category I or II depending on the effluent limitations required by the NPDES permit.

In a combined sewer system, all attributable costs necessary to correct periodic bypasses or overflows should be excluded from Category I or II costs and should be reported as Category V costs. The cost of constructing storage and/or retention basins, lagoons, conveyances, or other facilities to control the discharge of pollutants from combined sewer overflows or bypasses should be reported under Category V.

Land costs may not be included unless the land is used as an integral part of the treatment process or for the ultimate disposal of wastes.

Categories III-A (Infiltration/Inflow Correction) and III-B (Major Sewer System Rehabilitation). Category III includes all estimated costs for I/I correction and sewer rehabilitation and includes two types of sanitary sewer system needs:

- I/I correction (Category III-A).
- Major sewer system rehabilitation (Category III-B).

The cost of correction or control of I/I in a combined sewer system should be reported under Category V, not Category III. However, major rehabilitation or replacement of combined collection systems should be reported in Category III-B when necessary for the overall integrity and performance of the sewer system. Replacement is defined as construction of parallel sewers, which are sewers performing the exact function of existing sewers where existing sewers are to be abandoned. Relief sewers do not fall within this definition, and the costs for relief sewers should be reported under Category IV-B. Major rehabilitation is defined as extensive repair of existing sewers beyond the scope of normal maintenance programs. (For example, pointing the mortar linings of deteriorated brick sewers is not major rehabilitation and should be reported under Category III-A.)

Costs for corrective action to eliminate or control I/I should be reported in Category III-A. The following guidance on Category III needs is provided to avoid duplication and to ensure the accuracy of reported eligible costs:

- If sanitary sewer overflows (SSOs) or system bypasses do not occur and costs have been included in Categories I and II for capacity to treat excessive I/I, the costs for the extra capacity must be separated and reported in Category III-A. An appropriate reduction of Category I or II costs also will be effected to account for I/I removed from the system.
- If SSOs occur due to excessive I/I, all costs for I/I correction, satellite overflow treatment facilities, or storage and pump-back facilities should be reported in Category III-A.

Category III-B includes all major sewer replacement and rehabilitation costs. All Category III-B needs must reflect replacement or major rehabilitation costs necessary to ensure the total integrity and performance of the waste conveyance and treatment facilities. Normal system operation and maintenance costs will not be included. However, if rehabilitation is being

undertaken primarily to correct an I/I problem, the costs should be included in Category III-A.

Categories IV-A (New Collectors and Appurtenances) and IV-B (New Interceptors and Appurtenances). Category IV-A includes the cost of new collector sewers and appurtenances. Costs included in Category IV-A are for a demonstrated need resulting from raw discharges, seepage to surface water from septic tanks and cesspools, and/or compliance with applicable court orders, permit stipulations, administrative actions, or capital improvement plans.

Category IV-B includes the cost of new interceptors and appurtenances. Force mains, pumping stations, outfalls, and other related appurtenances will be reported under Category IV-A or IV-B depending on whether their primary mechanical function relates to collectors or interceptors.

Category V (Correction of Combined Sewer Overflows). Category V includes all costs for eligible facilities to prevent or control combined sewer overflows. Included are storage, treatment, and conveyance facilities. Category V needs are estimated on an areawide basis and should be assigned to the central wastewater treatment plant receiving discharges from all tributary combined sewers in the combined sewer area. As a result, Category V needs should be reported for the central treatment plant only. (See Chapter 5 for more information.)

Category VI (Storm Water Control). Storm Water needs include eligible costs to plan and implement municipal storm water management programs required pursuant to NPDES permits for discharges from municipal separate storm sewer systems. These management programs include programs and/or source control measures (structural and nonstructural) that (1) reduce pollutants from runoff from commercial and residential areas that are discharged from the storm sewer, (2) detect and remove illicit discharges and improper disposal into storm sewers, (3) monitor pollutants in runoff from industrial facilities that discharge to municipal separate storm sewers, and (4) reduce pollutants in construction site runoff that discharge to municipal separate storm sewers. Included is the control of storm water pollution from diffuse sources that is ultimately discharged via a municipal separate storm sewer. Chapter 5 provides additional details regarding Category VI.

Category VII-A (NPS Agriculture - Cropland). This category covers all costs that address nonpoint source needs caused by agricultural activities such as plowing, pesticide spraying, irrigation, fertilizing, planting, and harvesting. Some typical best management practices that could be used to address agriculture-cropland needs are

- Conservation tillage
- Nutrient management
- Irrigation water management
- Structural BMPs (terraces, waterways, etc.)

Category VII-B (NPS Agriculture - Animals). This category covers all costs that address nonpoint source needs caused by agricultural activities related to animal production such as confined animal facilities and grazing. Some typical best management practices that could be used to address agriculture-animal needs are

- Animal waste storage facilities
- Animal waste nutrient management

- Composting facilities
- Planned grazing

If the facility has a discharge permit, the needs should be classified instead as Category VIII, Confined Animals - Point Source.

Category VII-C (NPS Silviculture). This category covers all costs that address nonpoint source needs caused by forestry activities, such as removal of streamside vegetation, road construction and use, timber harvesting, and mechanical preparation for the planting of trees. Some typical best management practices that could be used to address silviculture needs are

- Preharvest planning
- Streamside buffers
- Road management
- Revegetation of disturbed areas
- Structural practices and equipment (sediment control structures, timber harvesting equipment, etc.)

Category VII-D (NPS Urban). This category covers all costs that address nonpoint source needs associated with new or existing development in urban or rural settings, such as erosion, sedimentation, and discharge of pollutants (e.g., inadequately treated wastewater, oil, grease, road salts, and toxic chemicals) into water resources from construction sites, roads, bridges, parking lots, and buildings. This category also includes the remediation of privately owned individual sewage disposal systems. Some typical best management practices that could be used to address urban needs are

- Wet ponds
- Construction site erosion and sediment controls
- Sand filters
- Detention basin retrofit
- New on-site sewage disposal system

If the individual sewage disposal system is owned by a public entity, the costs should be included in Category I - Secondary Treatment instead.

Category VII-E (NPS Ground Water - Unknown Source). This category covers all costs that address ground water protection nonpoint source needs such as wellhead and recharge area protection activities. Any need that can be attributed to a specific cause of ground water pollution, such as leaking storage tanks, soil contamination in a brownfield, or leachate from a sanitary landfill, should be reported in that more specific category.

Category VII-F (NPS Marinas). This category covers all costs that address nonpoint source needs associated with boating and marinas, such as poorly flushed waterways, boat maintenance activities, discharge of sewage from boats, and the physical alteration of shoreline, wetlands, and aquatic habitat during the construction and operation of marinas. Some typical best management practices that could be used to address needs at marinas are

- Bulkheading
- Pumpout systems
- Oil containment booms

Category VII-G (NPS Resource Extraction). This category covers all costs that address nonpoint source needs caused by mining and quarrying activities. Some typical best management practices that could be used to address resource extraction needs are

- Detention berms
- Adit closures
- Seeding or revegetation

Any costs associated with facilities or measures that address **point source** discharges from mining and quarrying activities that have an identified owner should be included in Category IX, Mining - Point Source.

Category VII-H (NPS Brownfields). This category covers all costs that address nonpoint source needs associated with abandoned, idle, and underused industrial sites. All costs for work at these sites should be included in Category VII-H, regardless of the activity. Some typical best management practices that could be used to address needs at brownfields are

- Ground water monitoring wells
- In situ treatment of contaminated soils and ground water
- Capping to prevent storm water infiltration

Category VII-I (NPS Storage Tanks). This category covers all costs that address nonpoint source needs caused by tanks designed to hold gasoline or other petroleum products or chemicals. The tanks may be located either above or below ground level. Some typical best management practices that could be used to address storage tank needs are

- Spill containment systems
- In situ treatment of contaminated soils and ground water
- Upgrade, rehabilitation, or removal of petroleum/chemical storage tanks

If these facilities or measures are part of addressing nonpoint source needs at abandoned, idle and underused industrial sites (brownfields), the costs go in Category VII-H, Brownfields.

Category VII-J (NPS Sanitary Landfills). This category covers all costs that address nonpoint source needs caused by sanitary landfills. Some typical best management practices that could be used to address needs at landfills are

- Leachate collection or on-site treatment
- Gas collection and control
- Capping and closure

Category VII-K (NPS Hydromodification). This category covers all costs that address nonpoint source needs associated with channelization and channel modification, dams, and streambank and shoreline erosion. Some typical best management practices that could be used to address hydromodification needs are

- Conservation easements
- Swales or filter strips
- Shore erosion control
- Wetland development and restoration

c Bank and channel (grade) stabilization

Any work involved with wetland or riparian area protection or restoration is included under this category.

Category VIII (Confined Animals-Point Source). A combination of unit processes or best management practices designed to address water quality or public health problems caused by agricultural activities related to animal production that are subject to the concentrated animal feeding operation (CAFO) regulations.

Animal waste includes the fecal urinary wastes of livestock and poultry, process water (such as that from a milking parlor), and the feed, bedding, litter, and soil with which they become intermixed. Pollutants such as organic solids, salts, bacteria, viruses, and other microorganisms, and sediments may be contained in animal wastes transported by runoff water and process wastewater.

Category IX (Mining-Point Source). A combination of unit processes or best management practices designed to address water quality and/or public health problems caused by **point source** mining and quarrying activities. Resource extraction management practices can prevent or reduce the availability, release, or transport of substances that adversely affect surface and ground waters.

Former Categories of Needs: Estuaries and Wetlands. To avoid double accounting needs related to estuaries and wetlands were not transferred to the CWNS database. Users will need to re-enter these needs into the appropriate categories described above.

Eligible/Ineligible Costs

The following costs are to be included as eligible costs in developing a cost estimate for the CWNS:

- Construction costs for building the project.
- Costs of legal and engineering services.
- Costs incurred during building to ensure that a facility is built in conformance with the design plans and specifications.
- Costs for construction of small and on-site systems including the cost of major rehabilitation, upgrading, enlarging, and installing.
- Costs for land that will be an integral part of the treatment process or that will be used for the ultimate disposal of residues.
- Costs for acquiring an existing wastewater treatment works that provides new pollution control benefits.
- Costs for equipment, materials, and supplies to initiate plant operations.
- Costs to relocate utilities.

In general, the following costs are not to be included, but may be included as Separate State Estimates:

- Purchase of land for rights-of-way.
- Costs for land unless the land is an integral part of the treatment process (e.g., land treatment).
- Costs for interest expense.
- Costs to install house laterals.

SRF-eligible costs are those costs that are eligible under Title VI of the CWA.

Operation and maintenance costs may also be reported in the CWNS database separately.

Revising Cost Estimates to a Common Dollar Base

It is no longer necessary to adjust cost data to reflect a common dollar base. You enter information on the dollar base of the cost data into the CWNS database and it will automatically adjust the cost data to the appropriate year basis for reporting. All calculations are based on the *Engineering News Record's* Construction Cost Index (CCI).

Applying EPA Cost Curves

Construction cost estimating procedures (cost curves) for treatment and sanitary sewer needs have been used for the past Surveys when a need has been satisfactorily demonstrated but insufficient planning has been done to derive a cost.

The CWNS database includes an algorithm to automatically calculate cost estimates based on the reported population and technical information. These curves are designed to generate cost estimates for **general** types of planned changes, not specific unit processes or situations. It is preferable to use a planning document cost estimate where one is available and meets the criteria described earlier. See Chapter 6 of the *CWNS 2000 Database User Guide* for information on cost curves.

It is important to note that because the calculated cost estimate is based entirely on facility population and technical data, major emphasis should be placed on verifying the population and technical data for facilities that require a cost curve-based estimate.

Loan/Award Deductions

State CWNS Coordinators should obtain a listing of SRF loan recipients, as well as awards that were made through other funding sources (e.g., Farmers Home Loan, Appalachian Commission), from January 1996 to December 1999. Following the procedures in the *CWNS 2000 Database User Guide*, Chapter 6, enter the appropriate information related to all awards. Be careful when assigning loans and awards to facilities because the names used in the CWNS might not match those of the award or loan recipients very well. Usually the responsible entity and the county information should reasonably match. Although the needs and loan will rarely match, you should check to see whether the dollar amounts are comparable. Note that in some cases there will be loan awards that do not have corresponding needs in the CWNS database.

Data Adjustments for 301(h) Waivers

A list of facilities with section 301(h) ocean discharge waivers or those which have received statutory relief from secondary treatment requirements (e.g., San Diego, California) will be sent out to the appropriate States via the Regional Coordinators by November 15, 2000. For treatment plants that discharge to marine bays or estuaries and have applied for or received a waiver from the secondary treatment requirements, the portion for secondary treatment must be deducted from the total design year needs if the waiver is granted or pending. In the 1986 Needs Survey, secondary treatment needs were deducted for facilities for which 301(h) waivers had been granted and such facilities were acknowledged as 301(h) facilities. States should follow this same format in the CWNS 2000 for any new 301(h) waivers granted or pending.

Separate State Estimates

Throughout this chapter, emphasis has been placed on documenting SRF-eligible needs. Although this is indeed the focus from EPA's perspective, this is not meant to diminish the importance of costs that are not SRF-eligible or could not be sufficiently documented. During the 1996 CWNS, nearly all of the States reported some needs as Separate State Estimates. In all, \$34.1 billion (1996 year base) in Separate State Estimates were reported in addition to \$126.4 billion (1996 year base) in needs that did meet the EPA reporting requirements.

If a State chooses to include a facility in the Separate State Estimates, its needs will be accepted without EPA review. The validity of Separate State Estimates needs is the sole responsibility of the States. Remember that Separate State Estimates are "in addition to" EPA documented estimates.

Site Visits

During the 1996 CWNS data collection effort, EPA visited two States (Texas and California) as part of its quality assurance procedures. EPA performed a general review of how the data were collected and how the needs were documented. The review covered traditional, storm water, and nonpoint source needs. For specific facilities, the two States provided EPA with documentation meeting approved criteria. Documentation to substantiate a water quality or public health problem and redocumentation were reviewed at length. Major wastewater treatment facilities were visited in each State. EPA also met with the States' NPS Coordinators to discuss documentation methods.